

MCF 3M Opener

12. A helicopter drops an aid package. The height of the package above the ground at any time is modelled by the function $h(t) = -5t^2 - 30t + 675$, where $h(t)$ is the height in metres and t is the time in seconds. How long will it take the package to hit the ground?

Oct 5-7:36 AM

MCF 3M Opener

12. A helicopter drops an aid package. The height of the package above the ground at any time is modelled by the function $h(t) = -5t^2 - 30t + 675$, where $h(t)$ is the height in metres and t is the time in seconds. How long will it take the package to hit the ground?

$$\begin{aligned}
 0 &= -5t^2 - 30t + 675 \\
 0 &= -5(t^2 + 6t - 135) \\
 0 &= -5(t^2 + 15t - 9t - 135) \\
 0 &= -5(t(t+15) - 9(t+15)) \\
 0 &= -5(t+15)(t-9) \\
 t &= -15 \\
 t &= 9
 \end{aligned}$$

$\begin{array}{r} 17 \\ 16 \overline{) 15} \\ \underline{-16} \\ -1 \end{array}$

The aid hits the ground at 9 sec.

Oct 5-7:36 AM

Section 3.5

q#6 p.68-Solving Using the TI83

6. The population of a city is modelled by the function $P(t) = 0.5t^2 + 10t + 200$, where $P(t)$ is the population in thousands and t is time in years. Note: $t = 0$ corresponds to the year 2000. According to the model, when will the population reach 312 000?

Population

$$P(t) = 0.5t^2 + 10t + 200$$

 $P(t)$ = pop in thousands t = time years ($t=0$ year 2000)

When will it reach 312 000 (312)

Mar 10-9:16 AM

Calculating the Roots

$$P(t) = 0.5t^2 + 10t + 200$$

$$\text{Sub } P(t) = 312$$

$$312 = 0.5t^2 + 10t + 200$$

$$0 = 0.5t^2 + 10t + 200 - 312$$

$$0 = 0.5t^2 + 10t - 112$$

(8, 312) In the year 2008 the population is 312 000.

(-28, 312) In 1972 the pop was 312 000.

Mar 10-9:19 AM

$$0 = 0.5t^2 + 10t - 112$$

$$0 = 0.5(t^2 + 20t - 224)$$

$$0 = 0.5(t^2 + 20t - 8t - 224)$$

$$0 = 0.5(t(t+20) - 8(t+20))$$

$$0 = 0.5(t+20)(t-8)$$

-28 (1972) 8 (2008)

At 2008 the population will reach 312 000.

Oct 1-9:19 AM

$$p1683169$$

#1 factor

2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Test Wednesday Ch. 2 & 3

Mar 10-9:28 AM

3) $d(s) = \text{stopping distance } s = \text{km/h}$
 $d(s) = 0.0056s^2 + 0.14s$
 $7 = 0.0056s^2 + 0.14s$
 $0 = 0.0056s^2 + 0.14s - 7$
TI83
 Calculate zeros $(25, 0)$
 At 25 km/h it will take 7m to stop.

Mar 10-9:42 AM

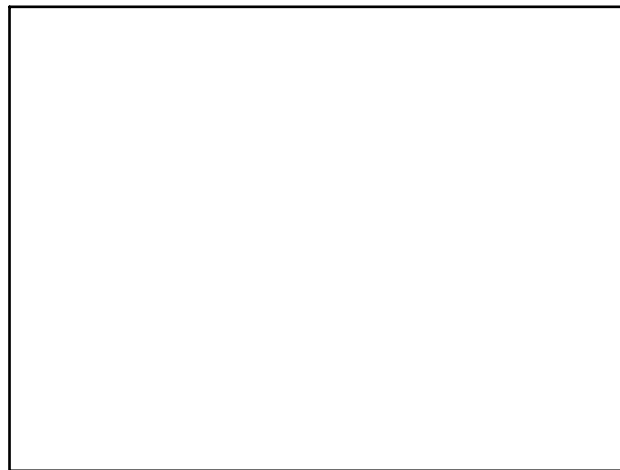
Solve q8 p169

- State Function
- State Ind / Dep variables
- State window requirements to display function
- How far back does the firefighter need to stand in order to safely hit the fire?

Mar 8-7:41 AM

eqn $(4, 5)$ $y_{int} - 3$
 h, k
 $y = a(x - 4)^2 + 5$
 $-3 = a(0 - 4)^2 + 5$
 $-3 = a(4)^2 + 5$
 $-3 = a(16) + 5$
 $-3 - 5 = a(16)$
 $-8 = a(16)$
 $\frac{-8}{16} = \frac{a(16)}{16}$
 $a = -\frac{1}{2}$
 $y = -\frac{1}{2}(x - 4)^2 + 5$

Mar 8-10:33 AM



Oct 8-8:19 AM